

Missouri Department of Natural Resources

## Total Maximum Daily Load Information Sheet

### Lake Taneycomo

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#### Water Body Segment at a Glance:

**County:** Taney  
**Nearby City:** Branson  
**Area of impairment:** 1730 acres  
**Pollutant:** Low Dissolved Oxygen  
**Source:** Table Rock Dam  
**Water Body ID:** 7314



State Map Showing Location of Lake Taneycomo

**Scheduled for TMDL Development:** Approved by EPA 2010

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#### Description of the Problem

##### Designated Beneficial uses of Lake Taneycomo

- Livestock and Wildlife Watering
- Protection of Warm-Water Aquatic Life
- Protection of Human Health (Fish Consumption)
- Protection of Aquatic Life (Cold-Water Fishery)
- Whole Body Contact Recreation
- Secondary Contact Recreation
- Drinking Water Supply

##### Use that is impaired

- Protection of Aquatic Life (Cold-Water Fishery)

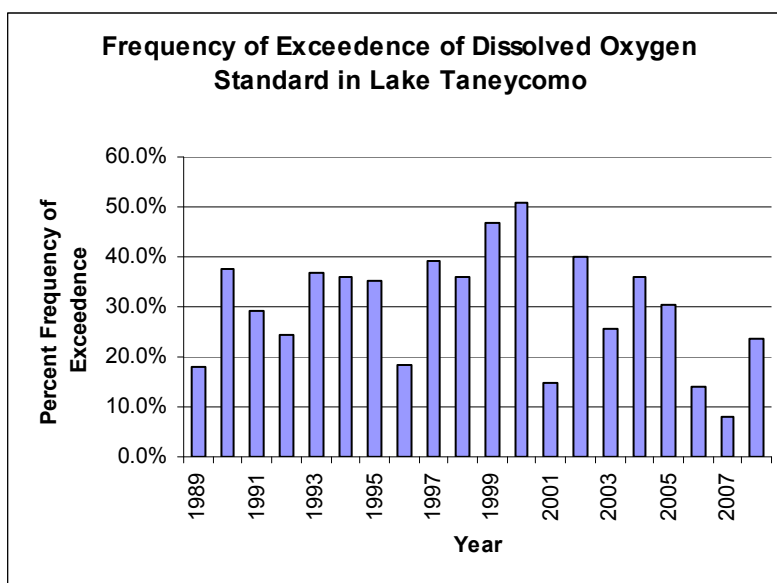
##### Standards that apply

- The Missouri Water Quality Standard, found in 10 CSR 20-7.031 Table A, for dissolved oxygen in Cold-Water Fisheries is 6 milligrams per liter (mg/L) or parts per million.

##### Background information and water quality data

Deep water discharges from Table Rock Lake for the purpose of generating electrical power provides discharge of water cool enough to maintain a cold-water fishery in Lake Taneycomo, the tailwater of Table Rock Dam. However, due to thermal stratification in the lake during summer through early winter, cold water in the lower layers of the lake does not mix with the warmer surface water and becomes depleted of dissolved oxygen (DO), resulting in lower concentrations of DO entering Lake Taneycomo. During these months, known as the “low dissolved oxygen season,” the 6 mg/L standard for DO is often not met.

The data in the figure below are taken from the USGS Annual Water Resources Report publication for data at College of the Ozarks at Lake Taneycomo. This report publishes a daily minimum, maximum and mean D.O. value for each day the monitor was recording. The state 303(d) Listing Methodology document now assesses compliance with the dissolved oxygen criterion based upon the percent of all DO measurements taken. If more than 30 measurements are made, the water body is judged to be impaired if more than 10 percent of samples do not meet the minimum DO criterion of 6 mg/L. In all but one of the years since 1989 (2007), the frequency of exceedance is greater than 10 percent. There is a map of Lake Taneycomo with the sampling sites shown on the next page.

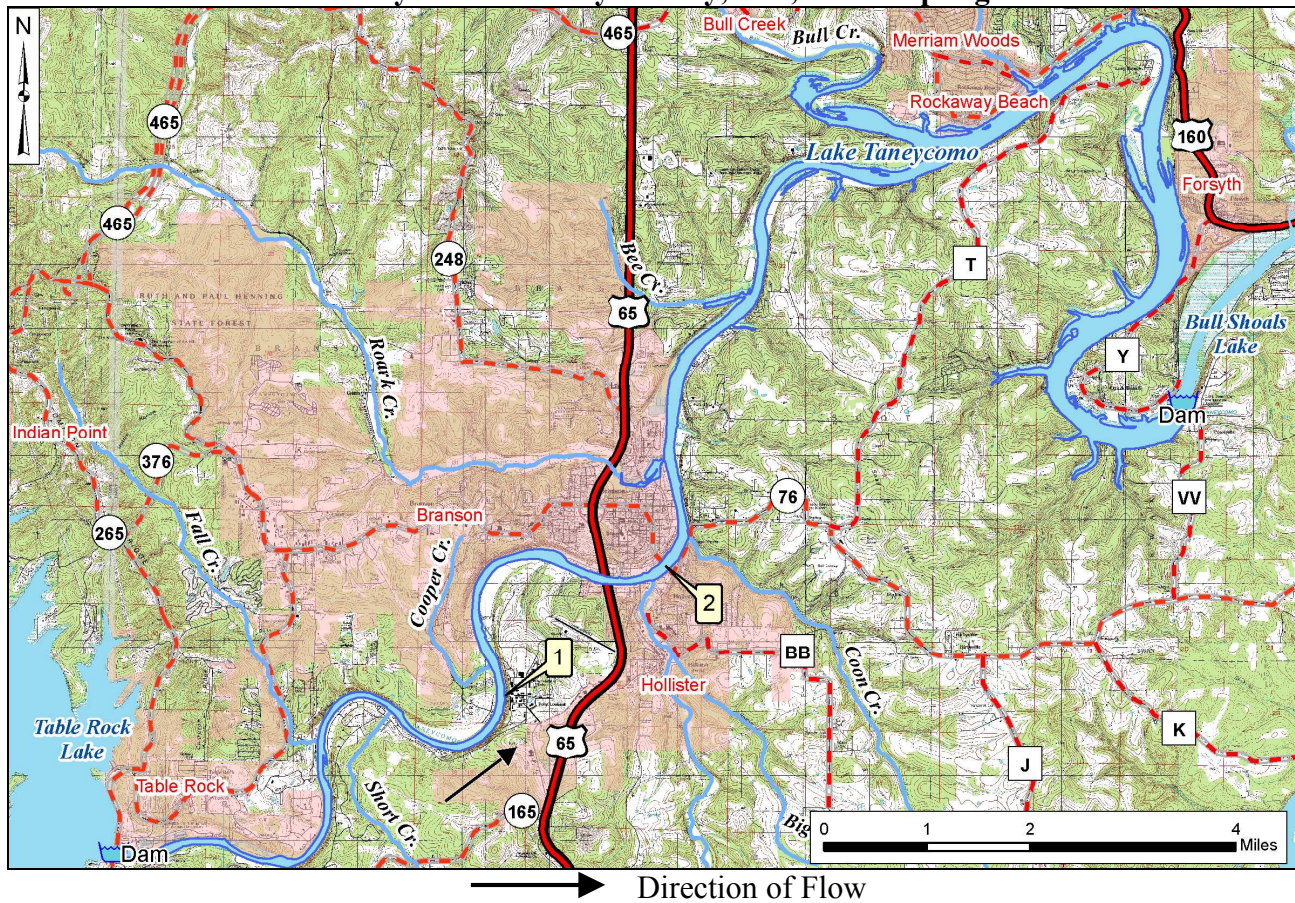


There are a variety of ways to raise DO in Lake Taneycomo, including injecting liquid oxygen into the releases from Table Rock Dam, modifications to the hydroturbines and turbine venting (drawing air into the generating turbines as water flows through them). However, all efforts to raise DO must be balanced with retaining Table Rock Lake and Dam as an important source of electrical power. The Operations Sub-Committee of White River DO Committee - Table Rock Lake is a standing committee that prepares an Operational Action Plan every year for the low dissolved oxygen season, which is from June through December. This document “provides the framework and criteria for interagency cooperation and actions which may protect the trout fishery downstream of Table Rock Dam from low DO impacts to the extent reasonably possible while preserving the flood control and hydropower benefits of the dam to the maximum extent possible.” Many methods and approaches to raising the DO in Lake Taneycomo have been, and are being, considered. Unfortunately, actions identified as needed to increase DO will be extremely costly, and funding sources needed to implement proposed solutions have yet to be identified. However, the expected future replacement of the turbines (now over 51 years old) in Table Rock Dam, can contribute to a solution if new turbines that incorporate the latest technology to enhance DO and accommodate minimum flows are chosen as replacements.

Besides structural and operational modifications at Table Rock Dam to raise DO, improved land management in the watershed above the dam is being encouraged. Large amounts of organic material in a water body require oxygen to decompose. If the amount of incoming nutrients and organic material can be reduced through best management practices (BMPs) in the Table Rock Lake and Lake Taneycomo watersheds, this can only have a positive effect on DO conditions in both Table Rock Lake and Lake Taneycomo can only have a positive effect on DO conditions in both lakes. However, the department

feels the increase in DO in Table Rock Lake as a result of these efforts will not be enough during the low DO season to routinely meet the 6 mg/L standard in the dam's discharge into Lake Taneycomo.

### Lake Taneycomo in Taney County, Mo., and sampling sites



#### Sample Sites

- 1 – Lake Taneycomo at College of the Ozarks
- 2 – Lake Taneycomo at Branson

The Environmental Protection Agency (EPA) approved the Lake Taneycomo TMDL for low dissolved oxygen on Dec. 30 2010.

#### For more information call or write:

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